HOLDIM group

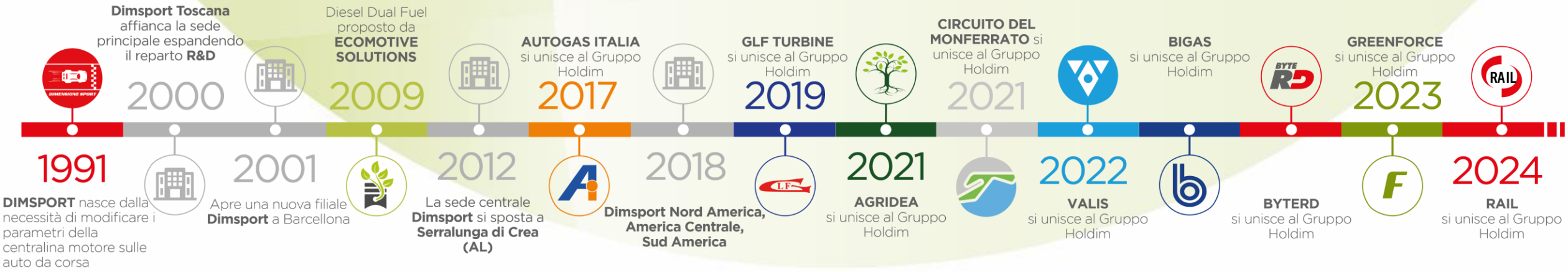
ecomotive solutions

YOUR PARTNER IN THE ENERGY TRANSITION

HOLDIM group

La nostra missione al Gruppo Holdim è guidare l'innovazione e l'eccellenza in ogni settore in cui operiamo. Ci impegniamo a creare valore sostenibile attraverso soluzioni innovative, sviluppando partnership a lungo termine e contribuendo attivamente alla crescita delle comunità in cui siamo presenti. Con una leadership responsabile e una mentalità orientata al futuro, puntiamo a superare le aspettative dei nostri stakeholder, costruendo fiducia, creando opportunità e promuovendo un impatto positivo sulla società e sull'ambiente. Sosteniamo il "Made in Italy," rappresentando l'eccellenza e la qualità italiane. Operando con una prospettiva internazionale, colleghiamo il nostro impegno locale a una visione globale, promuovendo una crescita economica armoniosa attraverso tecnologie che riducono l'impatto umano sull'ecosistema.

Numeri di HOLDIM → Fatturato:57M€ - Dipendenti: 270 - Aziende: 9 – Presenza Paesi:120


1991
DIMSPORT nasce dalla necessità di modificare i parametri della centralina motore sulle auto da corsa
2000
Dimsport Toscana affianca la sede principale espandendo il reparto R&D
2001
Apre una nuova filiale Dimsport a Barcellona
2009
Diesel Dual Fuel proposto da ECOMOTIVE SOLUTIONS
2012
La sede centrale Dimsport si sposta a Serralunga di Crea (AL)
2017
AUTOGAS ITALIA si unisce al Gruppo Holdim
2018
Dimsport Nord America, America Centrale, Sud America
2019
GLF TURBINE si unisce al Gruppo Holdim
2021
AGRIDEA si unisce al Gruppo Holdim
2021
CIRCUITO DEL MONFERRATO si unisce al Gruppo Holdim
2022
VALIS si unisce al Gruppo Holdim
BIGAS si unisce al Gruppo Holdim
BYTERD si unisce al Gruppo Holdim
2023
GREENFORCE si unisce al Gruppo Holdim
2024
RAIL si unisce al Gruppo Holdim

SOTTO LE ALI DI HOLDIM group

*Fondata nel 2009 nel gruppo Holdim Spa, il cui core business, dal 1991, è legato allo sviluppo di soluzioni per la gestione elettronica del motore. Ecomotive Solutions opera nel settore dei sistemi di controllo elettronico per motori a combustibili alternativi ed energie rinnovabili. Dalla piattaforma elettronica Diesel Dual Fuel ai motori a biometano e idrogeno con accensione comandata, offre tecnologie e prodotti Made in Italy, nonché formazione certificata e assistenza in tutto il mondo. Affrontando le sfide del futuro e in linea con le strategie del Gruppo Holdim, Ecomotive Solutions si è espansa all'inizio del 2022 incorporando **Autogas Italia** e **Bigas**, aziende storiche nel settore dei sistemi di conversione per veicoli bi-fuel (gas naturale e GPL).*

2009 — Sviluppata la tecnologia Diesel Dual Fuel

2012 — Omologato il sistema Diesel Dual Fuel

2013 — Prima conversione full gas per motori endotermici industriali

2013 — Sviluppo della tecnologia Syngas sui motori industriali

2015 — Conversioni a metano ora disponibili anche con LNG

2019 — Sviluppo e distribuzione della trasformazione a metanolo di motori per il trasporto leggero

2019 — Conversione full gas per i motori marini in collaborazione con Cantiere Lizzio

2020 — Conversione full gas anche su rotaia in collaborazione con Fondazione FS

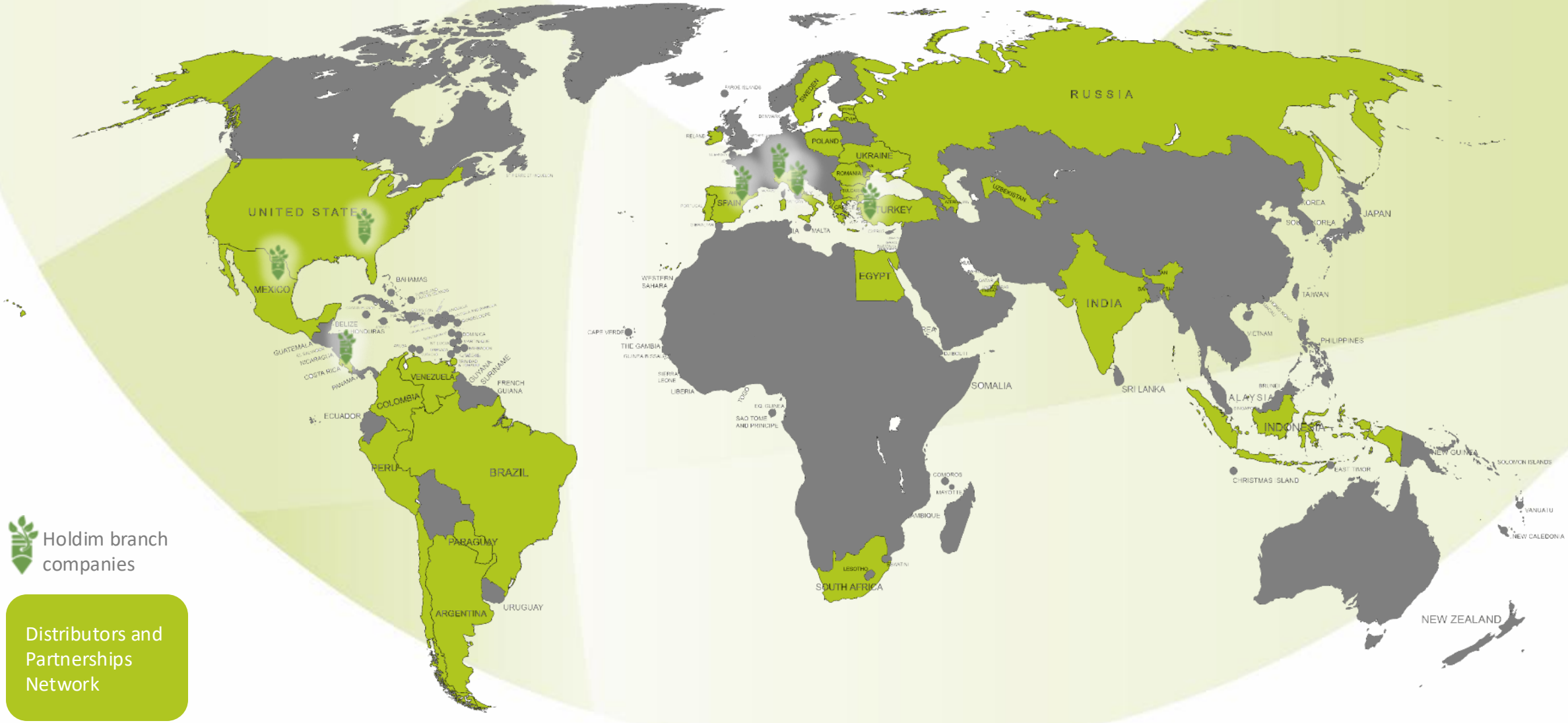
2021 — L'idrogeno proposto come soluzione alternativa per la mobilità sostenibile

2022 — L'azienda incorpora Autogas Italia e Bigas estendendo il suo raggio d'azione

2023 — Sviluppo del primo motore ad idrogeno

2024 — Accordo con Isotta Fraschini per lo sviluppo di motori con carburanti alternativi

I NOSTRI MERCATI



Holdim branch companies

Distributors and Partnerships Network

PRODOTTI E SERVIZI

PRODOTTI E SISTEMI COMMERCIALI

Progettazione, produzione e commercializzazione di prodotti per l'impiego di combustibili alternativi, sistemi Dual Fuel, Bi-Fuel e 100% Dedicati

PROTOTIPI & MICRO-SERIE

Sviluppo e prototipazione di motori e sistemi personalizzati per una vasta gamma di clienti (OEM, industriali, ecc.)

INTEGRAZIONE DI SISTEMA

Know-how e tecnologie a supporto dei clienti che richiedono la nostra competenza per progetti speciali

TESTING

Test emissioni completi a 360° per veicoli e motori. Progettazione e produzione banchi prova potenza e simulatori stradali

PIATTAFORME ELETTRONICHE

DIESEL DUAL FUEL

Implementa motori diesel con tecnologie avanzate per utilizzare carburanti alternativi, riducendo le emissioni di CO2 ed i costi, definendo un nuovo standard globale per la mobilità sostenibile ed i motori industriali.

BENZINA BI-FUEL

Sistemi bi-fuel per veicoli a benzina, riducono emissioni e costi operativi. Aggiorniamo la tradizione di un settore che ci vede tra i leader emergenti.

BENZINA BI-FUEL (DI)

Sistemi bi-fuel di ultima generazione per motori a iniezione diretta, adattati alle esigenze dei nuovi propulsori e della mobilità moderna. Tutta la nostra esperienza su motori ad iniezione diretta, diventa un prodotto destinato a rivoluzionare il mercato.

SPARK IGNITED DEDICATE

Sistemi avanzati per lo sviluppo e la gestione di motori ad accensione comandata. La piattaforma più flessibile del mercato per lo sviluppato di applicazioni OEM ed il retrofit di motori e veicoli già in operazione.

FUEL SYSTEM COMPONENTS

REGOLARE

Un'ampia gamma di regolatori di pressione per Idrogeno, CNG, LNG e GPL, per condizionare la pressione e la temperatura del gas per una perfetta compatibilità con la combustione nei motori.

INJECTING

I nostri iniettori, progettati per l'uso di combustibili gassosi e liquidi, garantiscono dosaggio preciso, alta durata e tempi di risposta rapidi. Questo è reso possibile grazie a RAIL, la nostra azienda partner all'interno del Gruppo Holdim, che sviluppa tecnologie di iniezione affidabili che da anni, equipaggiando migliaia di veicoli in tutto il mondo.

FILTERING

Filtrare correttamente da qualsiasi contaminazione i combustibili gassosi, è essenziale per garantire la lunga durata dei componenti del sistema applicato a motori alimentati a gas.

CONTROLLING

Un controllo rapido e affidabile del flusso di gas è essenziale per la sicurezza del veicolo, soprattutto con l'espansione delle applicazioni di carburanti alternativi. Con le nostre valvole, è possibile utilizzare in sicurezza idrogeno, gas naturale, nonché GNL o GPL.

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CASE HYSTORIES

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AUTOMOTIVE

Un range completo di soluzioni le cui applicazioni spaziano dal trasporto professionale pesante ai veicoli commerciali leggeri, arrivando fino al trasporto personale.

Soluzioni in grado di combinare i combustibili alternativi più adatti al trasporto specifico, con le esigenza ambientali ed i vincoli normativi vigenti.

Omologhiamo i veicoli dotati dei nostri sistemi, fino alla categoria emissiva più aggiornata, collaborando con le autorità specifiche dei paesi in cui operiamo.

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CUPRA ATECA LE

FROM PETROL TO PETROL+CNG

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system, one rail four methane injectors.

TANKS POSITIONING
3 tanks capacity 30+30+30 litres that allow a variable range of 300 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, inside the fuelling tank or in the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies

TECHNICAL DATA

ENGINE	2.0 PETROL, 221 KW 300 CV
NUMBER OF TANKS	3 (30+30+30 litres)
METHANE QUANTITY	15,5 kg
RANGE	300 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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SEAT ATECA

FROM DIESEL TO DIESEL+ CNG (DUAL FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system, one rail methane injectors.

TANKS POSITIONING
3 tanks capacity 30+30+30 litres that allow a variable range of 400w km according to the distances and to the conditions of use of the vehicle

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, at the rear of the vehicle, outside the bodywork.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies

TECHNICAL DATA

ENGINE	2.0 DIESEL ENGINE, 110 KW 150 CV
NUMBER OF TANKS	3 (30+30+30 litres)
METHANE QUANTITY	15,5 kg
RANGE	400 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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FIAT PANDA HYBRID CITY CROSS

FROM MILD HYBRID TO HYBRID + METHANE

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system, one rail four methane injectors.

TANKS POSITIONING
Positioning of 2 tanks of 24+24 litres that allow a variable range of 300-350 km according to the distances and to the conditions of use of the vehicle

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, inside the fuel tank filler.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

SPARE WHEEL CONNECTION
The spare wheel can be repositioned under the body of the car through a special fixing system.

TECHNICAL DATA

ENGINE	999cc 51KW/69HP
NUMBER OF TANKS	2 (24+24 litres)
METHANE QUANTITY	7,5 kg
RANGE	260-300 km
MAINTENANCE / SERVICE	required about every 30.000 Km

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TOYOTA C-HR 1.8 HYBRID

FROM HYBRID TO HYBRID + METHANE

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system, one rail four methane injectors.

TANKS POSITIONING
3 tanks capacity 24+24+22 litres that allow a variable range of 300-350 km according to the distances and to the conditions of use of the vehicle

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, at the rear of the vehicle, outside the bodywork or in the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies

TECHNICAL DATA

ENGINE	1.8 HYBRID 89KW/122CV
NUMBER OF TANKS	3 (22+24+24 litres)
METHANE QUANTITY	11 kg
RANGE	300-350 km
MAINTENANCE / SERVICE	required about every 30.000 Km

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ALFA ROMEO STELVIO TI Q4

FROM PETROL TO PETROL+ CNG (BI-FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system, one rail eight methane injectors designed for high performance.

TANKS POSITIONING
3 tanks capacity 30+30+30 litres that allow a variable range of 280 km according to the distances and to the conditions of use of the vehicle

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, inside the fuelling tank or in the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies

TECHNICAL DATA

ENGINE	2.0 PETROL ENGINE 205 kW 280 HP
NUMBER OF TANKS	3 (30+30+30 litres)
METHANE QUANTITY	15,5 kg
RANGE	280 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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JEEP GRAND CHEROKEE 3.0

FROM DIESEL TO DIESEL+CNG (DUAL FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system and the methane injectors.

TANKS POSITIONING
3 tanks capacity 24+30+30 litres that allow a variable range of around 350-400 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, at the rear of the vehicle outside the bodywork, or inside the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

TECHNICAL DATA

ENGINE	3.0L V6 CRD 184kW/247HP EDC17C79
NUMBER OF TANKS	3 (24+24+30 litres)
METHANE QUANTITY	15 KG
RANGE	350-400 KM
MAINTENANCE / SERVICE	required about every 30.000 Km

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FIAT 500 X 1.6 E-TORQ

FROM PETROL TO PETROL+ CNG (BI-FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system, one rail four methane injectors designed for high performance.

TANKS POSITIONING
3 tanks capacity 30+30+30 litres that allow a variable range of around 350 km according to the distances and to the conditions of use of the vehicle

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, inside the fuelling tank or in the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies

TECHNICAL DATA

ENGINE	1.6 PETROL ENGINE, 81 kW 110 HP
NUMBER OF TANKS	3 (30+30+30 litres)
METHANE QUANTITY	15,5 kg
RANGE	350 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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JEEP RENEGADE 2.0 MULTIJET

FROM DIESEL TO DIESEL+ CNG (DUAL FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, an ECU for the control and management of the methane system, one rail methane injectors.

TANKS POSITIONING
3 tanks capacity 24+24+24 litres that allow a variable range of 400 km according to the distances and to the conditions of use of the vehicle

FUEL CHARGER
The fuel charger for refuelling the tanks can be positioned laterally, at the rear of the vehicle, outside the bodywork.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies

TECHNICAL DATA

ENGINE	2.0 DIESEL, 103 kW 140 HP
NUMBER OF TANKS	3 (24+24+24 litres)
METHANE QUANTITY	12 kg
RANGE	400 Km
MAINTENANCE / SERVICE	required about every 20.000 Km

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ECU

SWITCH

TANKS

FUEL CHARGER

IVECO DAILY 3.0

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, one rail two methane injectors and an ECU for the control and management of the methane system.

TANKS POSITIONING
In the cargo compartment of the van or under the frame are placed the CNG tanks which, depending on the location chosen by the customer , allow a variable range of 300 to 800 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks is positioned laterally, at the rear of the vehicle, outside the bodyworks or inside the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

FROM DIESEL TO DIESEL+CNG (DUAL FUEL)

TECHNICAL DATA

ENGINE	3.0l 110kW/147Hp EDC17C49
NUMBER OF TANKS	3 (30+30+30 litres) or 2 (115+115 litres)
METHANE QUANTITY	16 kg or 40 kg
RANGE	300-800 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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ECU

SWITCH

TANKS

FUEL CHARGER

FIAT DUCATO

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, one rail two methane injectors and an ECU for the control and management of the methane system.

TANKS POSITIONING
In the cargo compartment of the van or under the frame are placed the CNG tanks which, depending on the location chosen by the customer , allow a variable range of 300 to 800 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks is positioned laterally, at the rear of the vehicle, outside the bodyworks or inside the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

FROM DIESEL TO DIESEL+CNG (DUAL FUEL)

TECHNICAL DATA

ENGINE	2.0l 16V Mjet 85kW/114Hp EDC17C69
NUMBER OF TANKS	3 (30+30+30 litres) or 2 (115+115 litres)
METHANE QUANTITY	16 kg or 40 kg
RANGE	300-800 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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ECU

SWITCH

TANKS

FUEL CHARGER

MERCEDES SPRINTER 519

FROM DIESEL TO DIESEL+CNG (DUAL FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, one rail two methane injectors and an ECU for the control and management of the methane system.

TANKS POSITIONING
In the cargo compartment of the van or under the frame are placed the CNG tanks which, depending on the location chosen by the customer , allow a variable range of 300 to 800 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks is positioned laterally, at the rear of the vehicle, outside the bodyworks or inside the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

TECHNICAL DATA

ENGINE	3.0l 16V CDI 140kW/188Hp EDC17CP10
NUMBER OF TANKS	3 (30+30+30 litres) or 2 (115+115 litres)
METHANE QUANTITY	16 kg or 40 kg
RANGE	300-800 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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ECU

SWITCH

TANKS

FUEL CHARGER

VOLKSWAGEN CRAFTER

FROM DIESEL TO DIESEL+CNG (DUAL FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, one rail two methane injectors and an ECU for the control and management of the methane system.

TANKS POSITIONING
In the cargo compartment of the van or under the frame are placed the CNG tanks which, depending on the location chosen by the customer , allow a variable range of 300 to 800 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks is positioned laterally, at the rear of the vehicle, outside the bodyworks or inside the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

TECHNICAL DATA

ENGINE	2.0l 16V TDI 103kW/138Hp DCM6.2
NUMBER OF TANKS	3 (30+30+30 litres) or 2 (115+115 litres)
METHANE QUANTITY	16 kg or 40 kg
RANGE	300-800 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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ECU

SWITCH

TANKS

FUEL CHARGER

CITROËN JUMPER

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, one rail two methane injectors and an ECU for the control and management of the methane system.

TANKS POSITIONING
In the cargo compartment of the van or under the frame are placed the CNG tanks which, depending on the location chosen by the customer , allow a variable range of 300 to 800 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks is positioned laterally, at the rear of the vehicle, outside the bodyworks or inside the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

FROM DIESEL TO DIESEL+CNG (DUAL FUEL)

TECHNICAL DATA

ENGINE	2.0l 16V BlueHDi 96kW/128Hp DCM6.2C
NUMBER OF TANKS	3 (30+30+30 litres) or 2 (115+115 litres)
METHANE QUANTITY	16 kg or 40 kg
RANGE	300-800 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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ECU

SWITCH

TANKS

FUEL CHARGER

NISSAN NV400

ENGINE COMPARTMENT
In the engine compartment are placed a double-stage pressure reducer, one rail two methane injectors and an ECU for the control and management of the methane system.

TANKS POSITIONING
In the cargo compartment of the van or under the frame are placed the CNG tanks which, depending on the location chosen by the customer , allow a variable range of 300 to 800 km according to the distances and to the conditions of use of the vehicle.

FUEL CHARGER
The fuel charger for refuelling the tanks is positioned laterally, at the rear of the vehicle, outside the bodyworks or inside the engine compartment.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the methane level available inside the tanks and receive information about any anomalies.

FROM DIESEL TO DIESEL+CNG (DUAL FUEL)

TECHNICAL DATA

ENGINE	2.3L 16V dCi 125kW/161HP SID310
NUMBER OF TANKS	3 (30+30+30 litres) or 2 (115+115 litres)
METHANE QUANTITY	16 kg or 40 kg
RANGE	300-800 Km
MAINTENANCE / SERVICE	required about every 30.000 Km

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ECU

SWITCH

TANKS

FUEL CHARGER

IRISBUS SFR 160 CROSSWAY

FROM DIESEL TO DIESEL+LNG (DUAL FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed 2 double-stage pressure reducers, one rail 6 methane injectors for high performance and a Heavy-duty ECU for the control and management of the Dual Fuel system.

TANKS POSITIONING
In the left-hand side luggage compartment of the bus has been installed the LNG tank that feeds the Dual Fuel system and provides a range of approximately 550/600 km, according to the distances and to the conditions of use od the vehicle.

FUEL CHARGER
The fuel charger for refuelling the cryogenic tank is positioned directly on the LNG fuel tank.It ensures the supply in all charging stations as equipped with a universal connection.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the LNG level available inside the tank and receive information about any anomalies.

TECHNICAL DATA

ENGINE	7.8L 220kW/295HP EDC7UC31
NUMBER OF TANKS	1 LNG tank of 200 litres of which 175 Litres net.
METHANE QUANTITY	73 kg
RANGE	570 Km
MAINTENANCE / SERVICE	Required about every 30.000 km or 1400 hours

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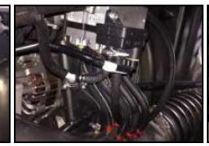

MERCEDES ACTROS EURO 6

FROM DIESEL TO LNG (DUAL FUEL)

ENGINE COMPARTMENT
In the engine compartment are placed 2 LNG pressure reducers, an ECU for the control and management of the liquid methane system, and all CAN-BUS network of the vehicle.

FUEL
1 tank of the capacity of 450 litres that allow a variable range of 1200-1400 km according to the distances and to the conditions of use of the vehicle.

REFUELLING
The fuel charger for refuelling the cryogenic tank is included with the LNG fuel tank.

SYSTEM ACTIVATION
In the passenger compartment there is a switch that allows you to select the type of fuel, verify the LNG level available inside the tank and receive information about any anomalies.

TECHNICAL DATA

ENGINE	12.8L 350Kw/471HP OM471 LA 6B
NUMBER OF TANKS	1 of 450 LITRES
METHANE QUANTITY	160 KG
RANGE	1200-1400 KM
MAINTENANCE / SERVICE	required about every 60.000 Km

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CASE HISTORY

AUTOMOTIVE

DUAL FUEL FOR PUBLIC AND PRIVATE TRANSPORT IN CHILE

CASE HISTORY

AUTOMOTIVE

DUAL FUEL FOR SUGAR CANE TRANSPORT AND INTERCITY BUSES IN BRASIL

CASE HISTORY

Johannesburg Converts 30 Buses to Natural Gas

September 4, 2015 | South Africa, Johannesburg and Italy, Serralunga di Crea

Italy's Ecomotive Solutions, a Holdim Group company and engine calibration specialist, has supported the conversion of 30 buses from the Johannesburg (South Africa) Metrobus fleet into Dual Fuel CNG (compressed natural gas) through its South African partner, Vehicle Gas Solutions. The recent conversion to natural gas is a part of a "Going Green" approach aimed at promoting and incentivizing the use of methane by the urban public transport system in Johannesburg.

AUTOMOTIVE

DUAL FUEL FOR PUBLIC TRANSPORT IN SOUTH AFRICA

CASE HISTORY

AUTOMOTIVE

DUAL FUEL FOR PUBLIC TRANSPORT IN ITALY

CASE HISTORY

AUTOMOTIVE

DUAL FUEL FOR HEAVY DUTY IN RUSSIA – KAMAZ (OEM)

CASE HISTORY

AUTOMOTIVE

DUAL FUEL FOR HEAVY DUTY IN DOMINICAN REPUBLIC

CASE HISTORY

ΤΕΧΝΟΛΟΓΙΑ *DUAL FUEL: DIESEL + CNG*

ΜΕΤΑΤΡΟΠΗ ΤΡΑΚΤΟΡΑ ΣΕ ΟΧΗΜΑ ΔΙΠΛΟΥ ΚΑΥΣΙΜΟΥ

ΠΕΤΡΕΛΑΙΟ & ΦΥΣΙΚΟ ΑΕΡΙΟ

Μετά την έκδοση της αναμενόμενης απόφασης με την οποία επιτρέπεται η χρήση πεπιεσμένου φυσικού αερίου (CNG – Compressed Natural Gas) και η μετατροπή των αυτοκινήτων σε οχήματα διπλού καυσίμου, το περιοδικό T&T σας παρουσιάζει τη μετατροπή βαρέως οχήματος – ενός τρακτορα DAF XF 105 460 – που κινείται με πετρέλαιο και φυσικό αέριο.

Επιμέλεια: Μανώλης Αγριμανάκης

Τη μετατροπή πραγματοποίησε επιτυχώς η βορειοελλαδίτικη εταιρεία NGT – Natural Gas Technologies, την οποία γνωρίσαμε στην περυσινή έκθεση του T&T «Transport Show». Να υπενθυμίσουμε στους αναγνώστες μας ότι έχει ήδη επιτραπεί η μετατροπή οχημάτων σε διπλού καυσίμου βενζίνης – φυσικού αερίου. Λέγοντας διπλού καυσίμου σημαίνει ότι κινούνται ταυτόχρονα και με τα δύο καύσιμα σε συγκεκριμένη αναλογία το καθένα ενώ είναι δυνατή και η κίνηση του οχήματος με το ένα μόνο καύσιμο. Ακόμη υπενθυμίζουμε ότι το CNG είναι ο υδρογονάνθρακας μεθάνιο και επειδή (το μεθάνιο), δεν αποτελεί προϊόν διύλισης, λέγεται φυσικό αέριο, όταν δε, αποθηκεύεται υπό πίεση παίρνει τη γνωστή σε μας ονομασία CNG.

Κατανάλωση

Για τα αποτελέσματα στην κατανάλωση, τα κόστος της μετατροπής και τα βασικά στοιχεία που πρέπει να γνωρίζει ο ενδιαφερόμενος, μιλάει στο T&T ο τεχνικός υπεύθυνος της NGT κ. Γιώργος Αμπατσίδης και απαντά στις ερωτήσεις μας.

Όπως αναφέρθηκε, η μετατροπή σε όχημα διπλού καυσίμου (dual fuel) και πρώτη σε βαρύ όχημα, έγινε σε τρακτορα μάρκας DAF XF 105 460 ιδιοκτησίας του ομίλου FHL KIRSAKOS A.E. ενώ είχαν προηγηθεί επιτυχείς μετατροπές σε ένα Skoda Octavia TDI και σε ένα Fiat Ducato 2.3 Multijet 120.

Σύμφωνα με τα αποτελέσματα των μετρήσεων κατανάλωσης που μας δίνει η εταιρεία, αυτά αγγίζουν το -24% και αφορούν σε ένα μικτό κύκλο διαδρομών με αναβάσεις σε μεταλλεία, στα δρόμο και σε κίνηση εντός του λιμανιού.

Τα πώς επιτυγχάνεται η παραπάνω οικονομία, αποτυπώνεται στον παρακάτω πίνακα, όπου λαμβάνεται ως δεδομένο σύγκριση, ότι για έναν αντίστοιχο μικτά κύκλο διαδρομών, το συγκεκριμένο DAF θα είχε κατανάλωση σε πετρέλαιο 40 λίτρα για τα 100 χιλιόμετρα.

DAF XF 105 460					
Euro 5, μοντ. 2012, 460 hp					
Diesel tank: 400lt (αφαιρέθηκε η 2η δεξαμενή των 1200 lt)					
CNG tank: 8x70lt (μέγιστη πλήρωση ~70kg)					
Αυτονομία: (σε dual-fuel mode) ~600km					
Πριν		Μετά			
Diesel		Diesel		CNG	
Lt/100km	€/Lt	Lt/100km	€/Lt	Kg/100km	€/kg
40	1.07	22	1.07	12	0.75
-		23.54 €		9 €	
42.8 €		32.54 €			
		-23,97%			

Σημαντικό επίσης στοιχείο που πρέπει να προσέξετε στον παραπάνω πίνακα είναι η αναλογία μίξης των δύο καυσίμων που είναι 30 προς 70 (πετρέλαιο προς φυσικό αέριο) και το γεγονός ότι το μεν πετρέλαιο πωλείται όπως γνωρίζουμε σε λίτρα, ενώ το φυσικό αέριο πωλείται σε κιλά.

Τα τεχνικά στοιχεία της μετατροπής και το κιτ «d-gid»

Τα μηχανολογικά εξαρτήματα μιας μετατροπής πετρελαιοκινητήρα σε dual-fuel, είναι κοινά με της bi-fuel (Βενζίνη-CNG), δηλαδή φιάλη - αυτόματη βαλβίδα - ατσάλινη σωλήνα υψηλής πίεσης - πνεύμονας - σωλήνα χαμηλής - μπεκ. Τα εξαρτήματα μετά τον πνεύμονα δε, είναι κοινά και με τα γνώριμα του LPG.

Αυτό που αλλάζει τελείως είναι τα ηλεκτρικά/ηλεκτρονικά μέρος. Ο εγκέφαλος (ECU) d-gid επικοινωνεί με το ποτενσιόμετρο του πεντάλ του γκαζιού αλλά και με την CAN BUS του οχήματος, ούτως ώστε να μπορέσει να μειώσει την έγχυση του πετρελαίου και να την αντικαταστήσει στοιχειομετρικά με την αντίστοιχη ποσότητα αερίου, δυναμικά και μεταβαλλόμενα σε όλο το φάσμα των στροφών και του φορτίου. Η επικοινωνία με την CAN BUS επιτρέπει να γίνονται όλες οι παραπάνω διαδικασίες ακόμα και με χρήση αυτόματου κιβωτίου ή cruise control.

«Αξίζει να σημειωθεί» μας επισημαίνει ο κ. Αμπατσίδης, «ότι αντίθετα με την συντριπτική πλειονότητα εγκεφάλων diesel dual fuel, που προέρχονται από την τεχνολογία του LPG, ο d-gid στακεύει στη μέγιστη μείωση της έγχυσης του πετρελαίου και όχι στην έμμεση εξοικονόμηση μέσω της υπερτροφοδότησης (εμπλουτισμός-overfuelling) με προσθήκη αερίου στο θάλαμο καύσης. Αυτή η διαφορά φιλοσοφίας βασίζεται στο γεγονός ότι τα επίπεδα μίξης diesel & LPG χωρίς προαναφλέξεις μπορούν να φτάσουν στην καλύτερη περίπτωση σε επίπεδα 70:30, ενώ αντίθετα στην περίπτωση diesel & CNG σε 30:70».

Εξίσου σημαντική, και απαραίτητη θα λέγαμε, είναι η επισήμανση του κ. Αμπατσίδη ότι «το κιτ που υπόκεινται σύζηση ισχύος συνήθως δεν φέρουν συμμόρφωση ως προς το πρότυπα ρύπανσης».

Η εταιρεία N.G.T. από την πλευρά της έχει φροντίσει από τον περασμένο Αύγουστο και έχει καταχωρήσει στο μητρώο CNG του ΥΜΕ όλα τα εξαρτήματα του κιτ d-gid, καθώς και τη συμμόρφωση μέχρι και για EURO 5, όπως αυτή εκδόθηκε βάσει αποτελεσμένων δοκιμών από το ιταλικό ΥΜΕ.

Ασφάλεια-κόστος-φθορές

Για την ασφάλεια της εγκατάστασης, το κόστος και τυχόν φθορές, ο κ. Αμπατσίδης μας αναφέρει:

«Η ασφάλεια της εγκατάστασης είναι δεδομένη λόγω της απόλυτης συμμόρφωσης των εξαρτημάτων και των κανόνων της διακεκριμένης βάσει του R110. Οι συνεργαζόμενοι εγκαταστάτες μας δε, έχουν εκπαιδευθεί στην Ιταλία πάνω στο συγκεκριμένο αντικείμενο.

Το κόστος της εγκατάστασης σε ένα ελαφρύ επαγγελματικό όχημα κυμαίνεται από 3.000 έως 4.000 € + ΦΠΑ. Για ένα βαρύ όχημα από 10.000 έως 12.000. Σε κάθε περίπτωση η διακύμανση οφείλεται στην επιλογή περισσότερων ή λιγότερων φιαλών

AUTOMOTIVE

DUAL FUEL FOR HEAVY DUTY IN GREECE

CASE HISTORY

HEAVY EQUIPMENT

DUAL FUEL FOR SPECIAL VEHICLES – BUCHER MUNICIPAL

HEAVY EQUIPMENT & OFF-ROAD

Grazie alle nostre tecnologie, anche i motori industriali utilizzati nelle situazioni di lavoro più gravose, possono utilizzare carburanti alternativi, ecologicamente più sostenibili per le loro attività.

Una linea di soluzioni per l'impiego di Biometano, BioGPL ed Idrogeno Verde su veicoli industriali allestiti, mezzi offroad e per la meccanizzazione agricola.

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CASE HISTORY

HEAVY EQUIPMENT

DUAL FUEL FOR SPECIAL VEHICLES – GREEN CRANES PROJECT, LIVORNO (ITALY)

CASE HISTORY

HEAVY
EQUIPMENT

DUAL FUEL FOR SPECIAL VEHICLES – RTG CRANE, PORT OF MUMBAI

CASE HISTORY

HEAVY EQUIPMENT

DUAL FUEL FOR SPECIAL VEHICLES – REACH STACKER, PORT OF DUISPORT

CASE HISTORY

HEAVY EQUIPMENT

100% BIOMETHANE CONVERSION FOR AGRICULTURAL MECHANIZATION

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CASE HISTORY

HEAVY EQUIPMENT

100% BIOMETHANE CONVERSION FOR AGRICULTURAL MECHANIZATION

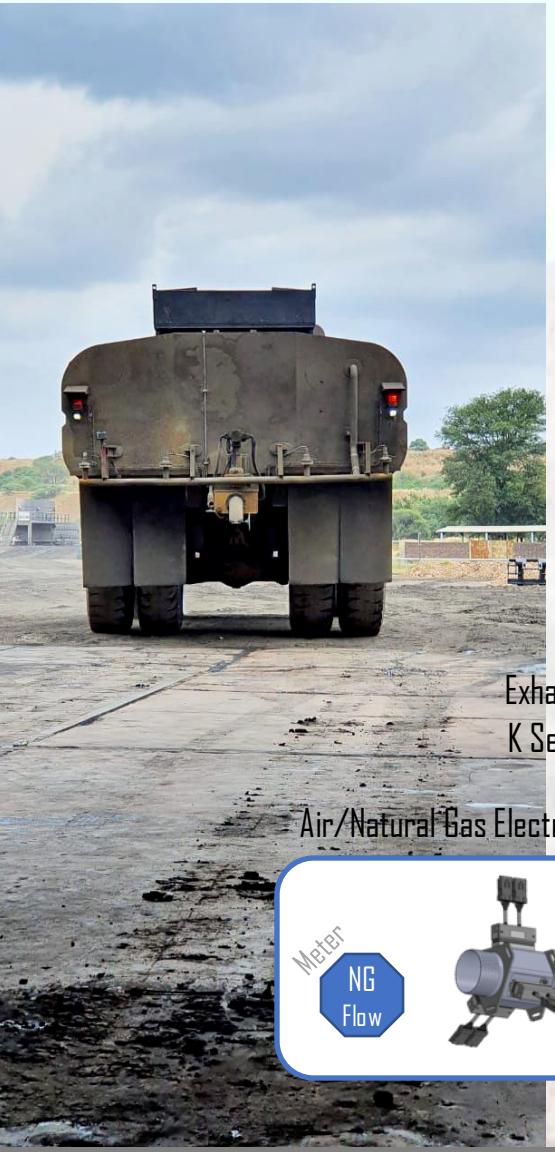
CASE HISTORY

HEAVY EQUIPMENT

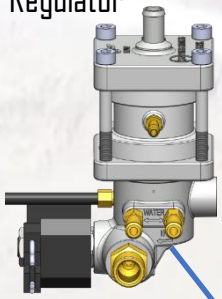
100% BIOMETHANE CONVERSION FOR AGRICULTURAL MECHANIZATION

CASE HISTORY

CAT 777 Water Dumper C15 CNG

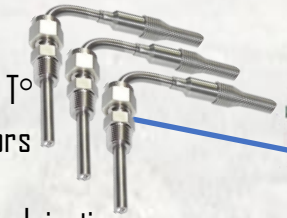


CNG HD Regulator

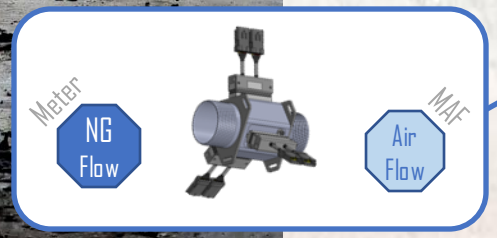


CNG pack onboard 6x150L

Exhaust T° K Sensors



Air/Natural Gas Electronic Injection



Dual Fuel Controller

HEAVY EQUIPMENT

DUAL FUEL CNG WATER DUMPER

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CASE HISTORY

HEAVY EQUIPMENT

DUAL FUEL LNG MINING DUMPER

RAILWAY

Dove le linee elettrificate non possono arrivare o in quelle situazioni in cui il diesel è ancora il carburante più utilizzato, la nostra proposta sostenibile risponde alla crescente necessità di un minore impatto ambientale e riduzione dei costi operativi del materiale rotabile.

Non solo applicazioni nel settore trasporto passeggeri ma possibilità di applicazione su mezzi speciali e di manovra.

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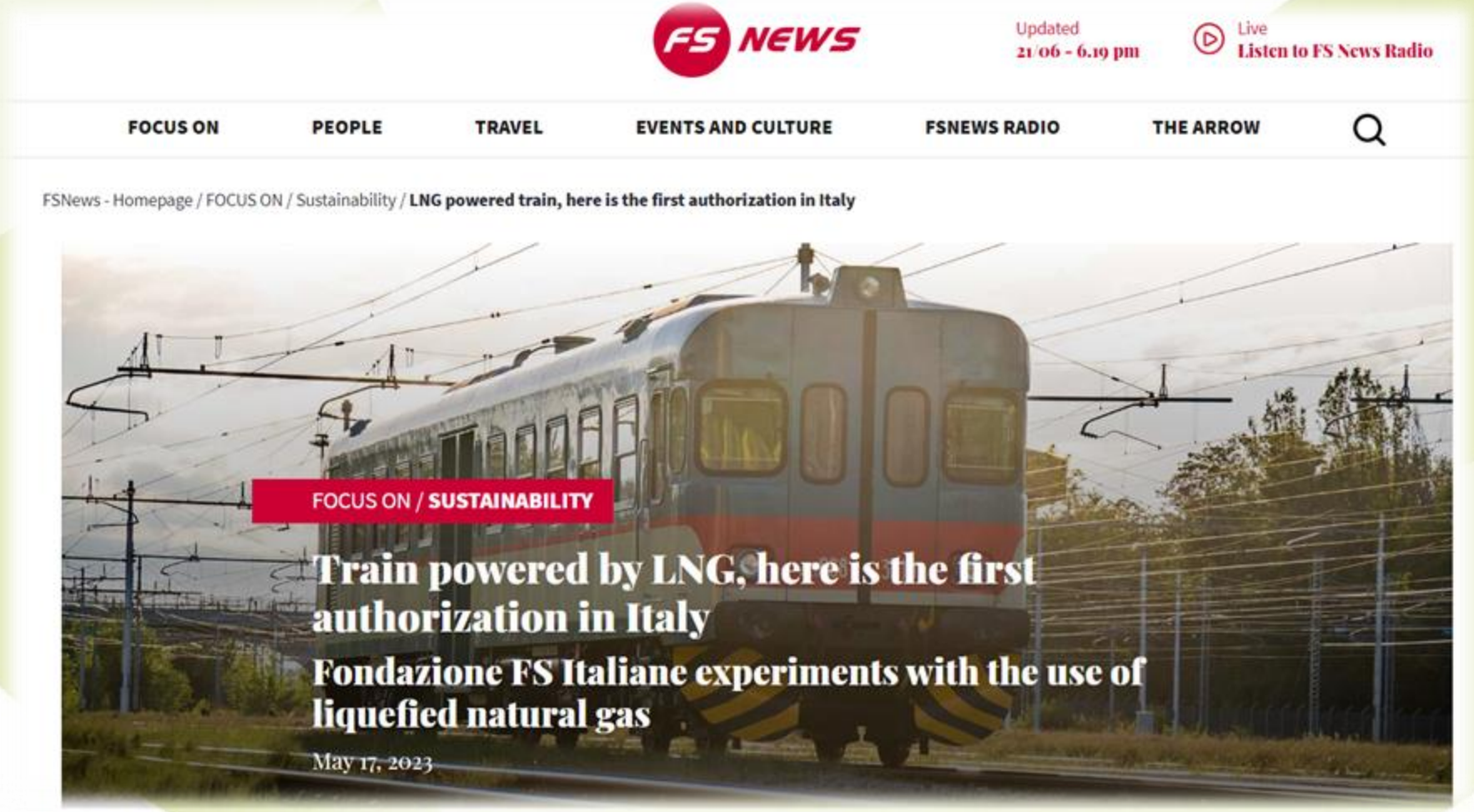
CASE HISTORY

RAILWAY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FOCUS ON / SUSTAINABILITY
Train powered by LNG, here is the first authorization in Italy
Fondazione FS Italiane experiments with the use of liquefied natural gas
May 17, 2023

100% LNG CONVERSION FOR RAILWAY: HITACHI RAIL /TRENITALIA

CASE HISTORY

RAILWAY

DIESEL TEST						
TEST	THC Total	NO Total	NO2 Total	NOx Total	CO2 Total	PM Total
[-]	[g]	[g]	[g]	[g]	[kg]	[g]
DIESEL_01	42,94	415,25	21,80	437,05	24,56	3,65
DIESEL_02	43,71	429,93	21,09	451,02	25,68	3,43
DIESEL_03	41,22	428,09	21,04	449,13	25,10	3,82
MEDIA	**42,62**	**424,42**	**21,31**	**445,73**	**25,11**	**3,63**

LNG TEST - BERSY CATALYST at 140 cm from the turbine								
TEST	THC Total	CH4	NMHC	NO Total	NO2 Total	NOx Total	CO2 Total	PM Total
[-]	[g]	[g]	[g]	[g]	[g]	[g]	[kg]	[g]
LNG_01	7,45	4,43	3,02	0,05	0,40	0,45	20,93	0,03
LNG_02	13,51	11,29	2,22	0,00	0,31	0,31	20,88	0,03
MEDIA	**10,48**	**7,86**	**2,62**	**0,03**	**0,36**	**0,38**	**20,91**	**0,03**

DELTA PERCENTAGE - LNG with CATALYST vs DIESEL					
THC	NO	NO2	NOx	CO2	PM
[%]	[%]	[%]	[%]	[%]	[%]
-93,85	**-99,99**	**-98,33**	**-99,91**	**-16,67**	**-99,17**

100% LNG CONVERSION FOR RAILWAY: HITACHI RAIL /TRENITALIA

MARINE

La logistica non si limita al trasporto di carichi su strade e autostrade: la sfida di Ecomotive Solutions prosegue sulle "autostrade del mare".

In un mondo di normative in continua evoluzione e con la diffusione delle ECA (Emission Control Areas) che rendono lo scenario più dinamico, Ecomotive è già impegnata in varie missioni e progetti per dare una svolta green anche a questo settore.

ecomotive solutions

GREEN BOAT

Italgas

Lizzio
CANTIERE LIZZIO SRL

VOLVO PENTA **CNG power by Ecomotive**

ecomotive solutions

Venice

Salone Nautico di Venice 2021

lizzio
CANTIERE LIZZIO SRL

Type 4 CNG Cylinders Layout

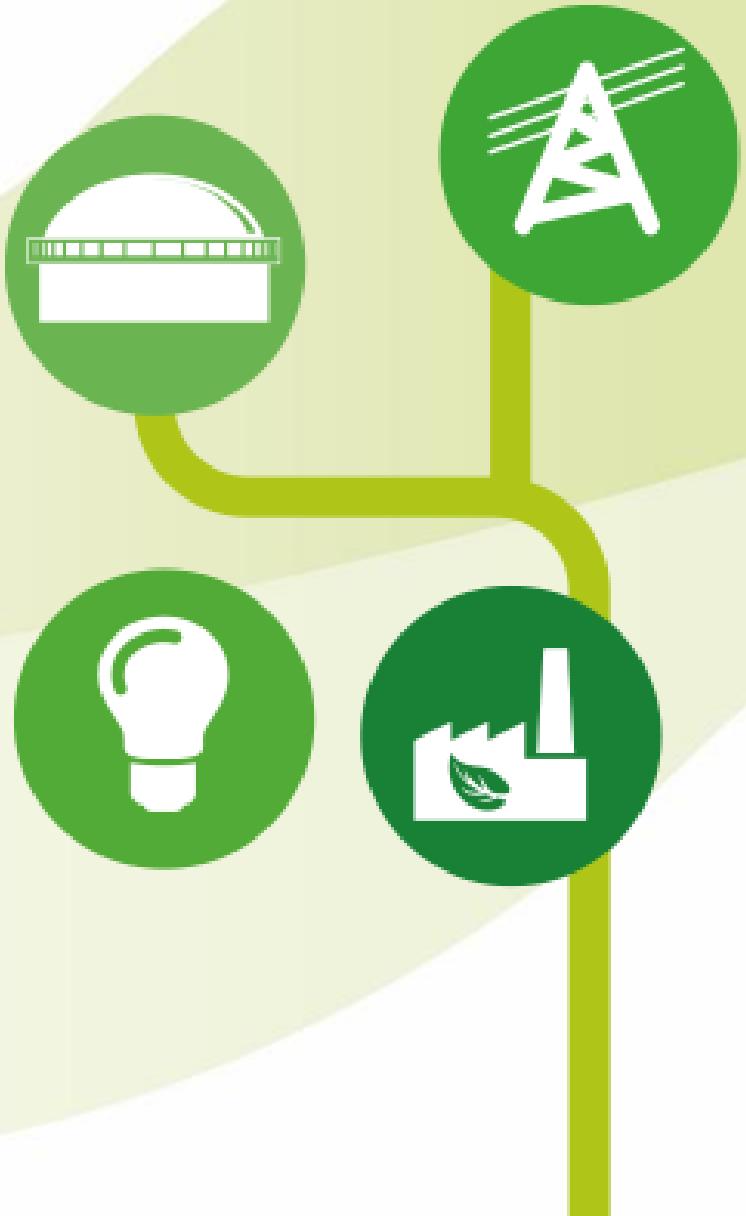
CANTIERE LIZZIO SRL

CNG slow filling reuelling

ENERGY

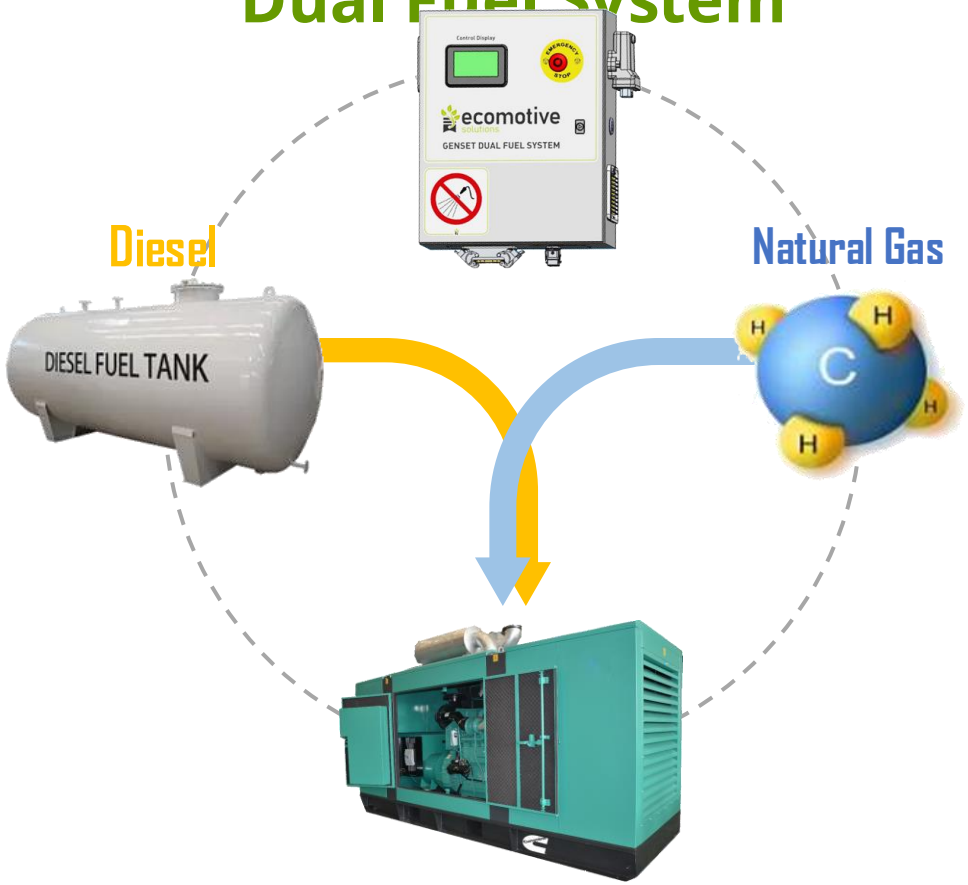
La crescente varietà di combustibili non fossili di origine biologica o sintetica crea una forte domanda di soluzioni tecnologiche per produrre energia.

Svariate possibilità di interveno, dal Diesel Dual Fuel alle Trasformazioni di motori diesel in motori 100% onnivori, che diventano così flessibili e capaci di lavorare con diversi combustibili alternativi quali Biometano, BioGPL, Idrogeno Verde, Metanolo Etanolo, Ammoniaca, DME, Syngas, ecc.



ecomotive solutions

d-gid®GENSET
Dual Fuel System



d-gid®GENSET è il sistema Dual Fuel per Generatori di Corrente che consente di alimentare qualsiasi motore Diesel con una miscela di carburante Diesel/Gas. Le informazioni digitali provenienti dal motore, permettono al sistema di controllare la miscela Aria/Gas di un secondo combustibile gassoso gestendo la quantità di Diesel che viene ridotta, secondo criteri di sicurezza, al fine di mantenere efficiente il bilancio energetico complessivo e della combustione. Un monitoraggio in tempo reale dei parametri del motore, garantisce il miglior tasso di sostituzione Diesel/Gas, in condizioni operative ottimali.

Cummins Power Generator
QSL9 – C 275 D5

Questo generatore di corrente è stato utilizzato come unità Prime Power da una società manifatturiera che cercava di integrare la rete locale con un generatore Diesel capace di utilizzare anche il Gas Naturale in miscela.

CAT Power Generators C15

Modello: C15
Cilindri: 6
Potenza: 440 kW
Cilindrata: 13 liter

Queste unità Dual Fuel, sono state impiegate in campi mobili per la perforazione di pozzi d'acqua, in Turchia, utilizzando LNG come fonte di Gas Naturale per i motori.

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ENERGY

METHANOL GENERATOR FOR ISRAEL MARKET

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ENERGY

BIOGAS MICRO PLANTS

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YOUR PARTNER IN THE ENERGY TRANSITION

GRAZIE